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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,182	01/11/2002	Sabina Houle	P 0276921 P12682	5990

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Pillsbury Winthrop LLP
Intellectual Property Group
1600 Tysons Boulevard
McLean, VA 22102

EXAMINER

DUONG, THO V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,182

Applicant(s)

HOULE ET AL.

Examiner

Tho v Duong

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt of applicant's amendment is acknowledged and entered as paper #5. Claims 1,4-17 are pending.

Response to Arguments

Applicant's arguments with respect to claims 1 and 4-17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed subject matter of "the step portion is irregularly shaped" renders the scope of the claim indefinite since it is not clear what shape is an "irregularly shaped"; therefore the examiner is not able to make a proper search on this subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Tosaya et al. (US 6,538,320). Tosaya discloses (figures 2 and 3) an integrated heat spreader (102) constructed and arranged to be adhesively affixed with a sealant (116), to at least of portion of a substrate (112), which a die (114) is mounted on; a rectangular body portion (104); a solid continuous lip portion (106) substantially vertically oriented relative to the body portion; and a step portion (108) adjacent to the lip portion (106) wherein the step portion (108) has a plurality of holes (110).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyasa in view of Houle et al. (US 6,469,381). Toyasa discloses substantially all of applicants claimed invention as discussed above except for the limitation of the material of the heat spreader's step portion. Tosaya discloses (figures 3 and 4) that the heat spreader (102), which includes the body (104), the lip (106) and the step portion (108), is made of a unitary body of a single material. Houle discloses (figure 3, and column 3, line 67- column 4, line 10) that a heat spreader (305) is used to dissipate heat from a heat source (303) wherein the heat spreader (305) can be made of copper or carbon/carbon composite or carbon/copper composite comprising a matrix carbon

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fibers composite to obtain a high thermal conductivity heat spreader. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Houle's teaching in the Tosaya's heat spreader to obtain a high thermal conductivity heat spreader which includes a step portion.

Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Toy et al. (US 5,931,222). Toyasa substantially discloses all of applicant's claimed invention except for the limitation that the heat spreader is coated with nickel. Toy discloses (figure 1, column 7, lines 7-21 and column 10, lines 26-32) that an entire surface of heat spreader (18) is coated with nickel and specifically plated with gold at the leg portion (25) of the heat spreader to prevent corrosion on the heat spreader. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Toy's teaching in Lin's heat spreader to prevent corrosion on the heat spreader

Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaya in view of Funari et al. (US 4,849,856). Tosaya discloses substantially all of applicant's claimed invention as discussed above except for the limitation that the sealant is epoxy-based and a thermal interface material is disposed between a die and the body portion. Funari discloses (figures 1,3, 8, column 5, lines 2-5 and column 6, lines 24-29) a heat spreader (17) attached on a substrate (11) by leg portions (84) wherein the leg portions has a plurality of holes (85) for a sealant of epoxy based to fill up the hole to fixedly secure the heat spreader on to the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Funari's teaching in Lin's heat spreader to fixedly secure the heat spreader on the substrate. Funari further discloses (column 3, lines 40-46) that an epoxy polymer (33) is placed

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between the chip (13) and the heat spreader (17) to secure the chip to the heat spreader. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Funari's teaching in the Tosaya 's device to secure the chip to the heat spreader.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

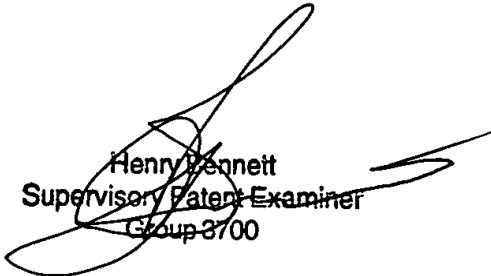
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7764.

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Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0861.

Tho Duong

July 29, 2003



Henry Bennett
Supervisory Patent Examiner
Group 3700